

Summary

Phase contrast X-ray device for creating a phase contrast image of an object and method for creating the phase contrast image

The invention concerns a phase contrast X-ray device (1) for
5 creating a phase contrast image of at least one object (4) with at
least one X-ray source (2) for generating an X-radiation that has a
specific spatial coherence (14) within a specific optical distance
(6) to the X-ray source and at least one evaluation unit (16) for
10 converting the X-radiation after the X-radiation has passed through
the object arranged within the optical distance to the X-ray source
in the phase contrast image of the object. The phase contrast X-ray
device is characterized in that the X-ray source has an output
ranging from 50 W up to and including 10 kW and a spatial coherence
15 length of the X-radiation has been selected within the optical
distance to the X-ray source ranging from 0,05 μm . This is obtained
by using an X-ray source with line-shaped focus (7) and/or by
monochromating the X-radiation by using a gradient multilayer
reflector (20). With monochromating, the X-radiation has a temporal
20 coherence (15) suitable for recording the phase contrast image of a
thicker object. The X-ray device is suitable for use in medical
technology and the non-destructive material testing.